increased, and in hereditary ataxia telangiectasia where the values are diminished or absent. In the nephrotic syndrome, γG and γA levels are low but the γM fraction is normal or slightly elevated. In protein-losing enteropathies, all serum immunoglobulins may be low. Elevation of IgM levels during the neonatal period is indicative of congenital infections. Marked elevation of IgM levels occur in systemic parasitic infestations, the presence of IgM in spinal fluid being considered presumptive evidence of trypanosomiasis in Africa. More recently, elevated IgM levels have been used to differentiate infectious from serum hepatitis.

EDWARD SHANBROM, M.D.

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Value of Total Thyroxin and Free Thyroxin Measurements in Thyroid Evaluation

The protein-bound iodine (PBI) and radioiodine (RAI) uptake can be altered by numerous substances even though no abnormality of the thyroid gland exists. Availability of total serum thyroxin and free serum thyroxin measurements now provide more accurate means for evaluating the thyro-metabolic status. With excessive inorganic or organic iodides, especially iodinated radiographic dyes, the PBI is elevated and the RAI uptake decreased. Measurement of total serum thyroxin eliminates all exogenous sources of iodide and measures only thyroxin iodine. With abnormal binding of thyroxin to serum proteins, the PBI may be increased (oral contraceptives, pregnancy) or decreased (androgens, Dilantin,® nephrosis). The free thyroxin level determines the amount of metabolically active hormone (free thyroxin) present even though total thyroxin levels may be altered by abnormal binding to serum proteins.

WINSTON A. TUSTISON, M.D.

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Murphy BEP, Pattee CJ, Gold A: Clinical evaluation of a new method for the determination of serum thyroxine. J Clin Endo 26:247-256, 1966

Clinical Indications for the Analysis of Immune Globulins

Quantitation of specific immunoglobulins is helpful in the evaluation of three classes of patients: (1) the patient with a suspected immunoglobulin deficiency syndrome who presents with recurrent infections; (2) the patient with hyperglobulinemia; and (3) the newborn in whom an intrauterine infection is suspected.

1. Immunoglobulin deficiency syndromes may be either congenital or acquired and may demonstrate a selective or combined deficiency of either IgG, IgA, or IgM. Those deficient in IgG may be helped substantially by parenteral gamma globulin.

2. Patients with hyperglobulinemia fall into two classes, those with malignancies of the lymphoreticular system exemplified by multiple myeloma and those with an increase in all immunoglobulins such as in hepatitis and chronic infectious processes.

Patients with myeloma and hyperglobulinemia usually have a selective increase in IgA or IgG with a depression of the other immunoglobulins.

3. The newborn usually begins synthesizing IgM around the time of birth. If exposed in utero to infections such as rubella, cytomegalic inclusion disease, or toxoplasmosis, significant IgM will be synthesized and appreciable levels will be found in cord blood.

J. E. LEWIS, M.D.

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Fahey JL: Antibodies and immunoglobulins. II. Normal development and changes in disease. JAMA 194:255-258, 1965

Phosphate Treatment Of Hypercalcemia

Hypercalcemia may occur in a variety of conditions including parathyroid adenoma, carcinomatosis, vitamin D intoxication, and immobilization of patients with Paget's disease. Hypercalcemia causes symptoms such as constipation, lethargy, lassitude, and in more severe conditions, nausea, vomiting and dryness of the mouth. Inorganic phosphate given orally or, in an emergency, intra-